Chemical Warfare Agents

Chemical warfare agents are poisonous gases, liquids, or solids that have toxic effects on people, animals and plants. Exposure to chemical warfare agents can cause serious injuries and death. Severity of injury depends on the type and amount of the chemical warfare agent used, and the duration of exposure.

The primary chemical warfare agents are sulfur mustard (HD) and the nerve agents GB (Sarin), and VX. In the case of intentional exposure, such as a chemical terrorism event, people would most likely be exposed to these chemicals by breathing the vapors released during the event. If an event is very large, people's skin might be exposed to the agents as microscopic droplets (aerosol).

What is sulfur mustard?

- Sulfur mustard (mustard gas) is called a "blister" agent. It smells like garlic or mustard and ranges in color from yellow to brown. Sulfur mustard is an oily liquid at temperatures above 57 degrees (F). Sulfur mustard is solid at temperatures below 57 degrees (F).

What are the health effects of sulfur mustard?

- Exposure to sulfur mustard can cause skin to become red and irritated. With sufficient exposure the skin will blister.
- Sulfur mustard can damage your eyes. Effects on the eye can include irritation, redness, and swelling of the lids.
- Throat irritation, sinus pain, and cough can develop after breathing in sulfur mustard. Larger exposures can damage the lungs.

When will symptoms of sulfur mustard exposure appear?

- If you are exposed to sulfur mustard, there can be a delay before you feel symptoms. Symptoms normally appear within 4 to 8 hours. However, after a relatively small exposure symptoms can take up to 24 hours to develop.

What medical treatment will I receive for sulfur mustard exposure?

- Medical staff can treat you with soothing lotions, eye drops, and pain medication. If infections develop, for example in damaged lungs, you can be provided antibiotics.

What are GB and VX?

- GB and VX are similar to the insecticides malathion and parathion. They are odorless and colorless and are stored as liquids. GB is similar in consistency to water. VX has the consistency of lightweight motor oil.

What are the effects of exposure to GB and VX vapor?

- Exposure to a small amount of vapor can result in pupils becoming smaller than normal, dim or blurred vision, eye pain, a runny nose, and shortness of breath. Symptoms can be seen alone or in combination.
- Moderate exposure can cause muscle weakness, nausea, vomiting, and diarrhea.
- Exposure to large amounts of vapor can cause interruption of breathing, muscle weakness, loss of consciousness, convulsions and death.

How long will it take symptoms to appear after exposure to GB or VX vapor?

- Effects usually appear seconds to minutes after breathing nerve agent vapor.
- With exposure to very small amounts of vapor, smaller than normal pupils may be the only effect and may take an hour to appear.

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Health

P.O. Box 47890
Olympia, Washington
98504-7890

www.doh.wa.gov

1-800-525-0127

What medical treatment will I receive for exposure to GB or VX?

- You will not need treatment if smaller than normal pupils are your only symptom. However, if you are exposed to larger amounts and have a runny nose, difficulty breathing, or nausea and vomiting, then you can be given antidotes.
- Two antidotes are available to treat exposure to GB or VX. The antidotes are atropine and pralidoxime.

What to do

- If a chemical agent attack occurs, authorities will instruct people to either seek shelter where they are and seal the premises (shelter-in-place), or evacuate immediately. Don't ventilate (air out) or leave your sealed shelter until you are told to do so.
- If you have symptoms of exposure, call 9-1-1 immediately and follow their instructions.
- Remember, avoiding chemical exposure should be your primary goal. Leaving your sheltered area to rescue or assist victims can lead to chemical exposures resulting in harmful effects. There is no assistance that the untrained can offer victims that would likely be of any value during a chemical attack.
- If you were outside before taking shelter or leaving the area and think you may have been exposed to a chemical agent, there are several things you can do. If you are in a sealed shelter, take off at least your outer clothes, put them in a plastic bag and seal the bag. If water is available in the shelter, wash or take a cool to warm (not hot) shower, using lots of soap and water. Do not put the soap in your eyes, just lots of water. If you leave the area, tell emergency responders or medical staff at your destination that you may have been exposed. Tell the emergency responders about the sealed bag so that they can arrange for its safe removal after the emergency.
- If you have symptoms of exposure, call 9-1-1 immediately and follow their instructions.

How to shelter-in-place

- Stay indoors.
- Close all windows and doors.
- Turn off ventilation systems (heating, air-conditioning, fireplace dampers, etc.).
- Go to the room with the fewest doors and windows.
- Dampen towels and place over the crack at the bottom of each door in the room.
- Cut plastic sheeting to fit over the windows and vents. Secure the sheeting with duct tape.
- Use duct tape around the doors.
- Turn on the radio.
- Don't let air in or out of your shelter.
- Stay in the room until authorities tell you it is safe to come out.